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(54) Sterilizing soil and mulching

(57) A method of growing a crop on arable land which comprises the steps of a) at least partially covering the land, before growing the crop therein, with an opaque plastics sheet material having a dark surface and a light surface, the dark surface being laid face downwards, b) sterilizing the soil beneath the plastics sheet material c) after any phytotoxic effects of the sterilizing step have dissipated, placing crop precursors in or on the soil through or adjacent the plastics sheet material and d) maintaining the plastics sheet material *in situ* as a mulching agent during growth to maturity of the crop.

**SPECIFICATION****Method of sterilizing and mulching**

- 5 This invention relates to an improved method of growing a crop.  
 According to the present invention, there is provided a method of growing a crop on arable land which comprises the steps of a) at least partially covering the land, before growing the crop therein, with an opaque plastics sheet material having a dark surface and a light surface, the dark surface being laid face downwards, b) sterilizing the soil beneath the plastics sheet material c) after any phytotoxic effects of the sterilizing step have dissipated, placing crop precursors in or on the soil through or adjacent the plastics sheet material and d) maintaining the plastics sheet material *in situ* as a mulching agent during growth to maturity of the crop. The invention 20 also embraces crops grown according to a method as defined above.

A suitable plastics sheet material for use in the present invention is a co-extruded polyethylene sheet, preferably arranged to have one white surface 25 and one black surface. Such a black and white co-extruded polyethylene sheet is commercially available under the Registered Trade Mark TWILENE and the invention specifically includes such plastics sheet material when sold for or used in a method of 30 growing crops as defined above. It is most desirable that the plastics sheeting should include stabilizing agents and ultra-violet radiation absorbing materials so that it will not become adversely degraded during any long exposure thereof to sunlight and atmospheric conditions. Such stabilizers and absorbents are well-known and may be selected as appropriate.

Any suitable way of sterilizing the soil beneath the plastics sheet material may be employed such as heating the soil by means of steam, which may be 40 superheated, or heating the soil electrically, e.g. by means of buried conductors. Alternatively or additionally, there may be injected into the ground a chemical such as an inorganic or organic bactericide, e.g., a cyanide.

45 In the method of the present invention the crop precursors referred to may comprise one or more of seeds, seedlings, cuttings, rooted runners, pips, etc.

The plastics sheeting may be laid across the land upon which the crop is to be grown in one continuous piece or may be laid as a plurality of strips which may be either joined or fastened together to provide continuous coverage of the land upon which the crop is to be grown or which may be simply overlapped to provide said continuous coverage. It

55 will be understood that access strips or areas may be left free of plastics sheeting to provide, for example, a series of parallel crop-growing, sheeting-covered strips with clear pathways between them to facilitate the planting of the said crop precursors and any 60 subsequent cultivation and/or maintenance. Apparatus suitable for laying strips of plastics sheeting is described and claimed in our copending Patent Application No. 21083/78 (serial No. ).

The crop precursors may be inserted into the soil 65 beneath the said sheets of plastics material by

sheet-puncturing and soil-drilling steps followed by planting in the drills the plant precursors as referred to above.

The said puncturing, drilling and planting operations may be carried out manually, but preferably are performed automatically by appropriately designed apparatus.

Preferred crops for growing by means of the present invention are those which are particularly susceptible to soil born infection and thus benefit greatly from soil sterilization procedures. The method of the present invention is thus particularly suitable for growing strawberries, melons, marrows and tomatoes.

80 The benefits of using a bi-coloured plastics sheet material as defined hereinbefore as a mulching agent are manifold: the soil is occluded from light, thus inhibiting the growth of weeds, moulds and algae; light is reflected from the light-coloured 85 surface onto the ripening crop thus promoting faster and more uniform ripening; and crops for consumption remain clean and pleasing in appearance.

**CLAIMS**

- 90 1. A method of growing a crop on arable land which comprises the steps of a) at least partially covering the land, before growing the crop therein, with an opaque plastics sheet material having a dark surface and a light surface, the dark surface being laid face downwards, b) sterilizing the soil beneath the plastics sheet material c) after any phytotoxic effects of the sterilizing step have dissipated, placing crop precursors in or on the soil through or adjacent the plastics sheet material and d) maintaining the plastics sheet material *in situ* as a mulching agent during growth to maturity of the crop.
2. A method according to claim 1, wherein the opaque plastics sheet material is a co-extruded polyethylene sheet.
3. A method according to claim 1 or 2, wherein the opaque plastics sheet material has one white surface and one black surface.
4. A method according to any preceding claim, 110 wherein sterilization of the soil is effected by a chemical method.
5. A method according to claim 4 wherein a cyanide is employed to sterilize the soil.
6. A method according to any preceding claim, 115 wherein the plant precursors are selected from seeds, seedlings, cuttings and rooted runners.
7. A method according to any preceding claim, wherein the crop precursors are inserted into the soil beneath the said sheets of plastics material by 120 puncturing the sheet and drilling the soil followed by planting the plant precursors in the drills so formed.
8. A method according to any preceding claim, wherein a plurality of parallel strips of soil are so covered with the plastics sheet material as to leave 125 clear pathways between the strips to facilitate planting of the precursors and any subsequent cultivation and/or maintenance.
9. A method according to any preceding claim, 130 wherein the sheets of plastics material are laid as contiguous or overlapping parallel strips and are

secured together.

10. A method according to claim 9, wherein the strips of plastics sheet material are welded together.

11. A method of growing a crop on arable land, substantially as hereinbefore described.

12. A crop when grown by a method as claimed in any preceding claim.

13. A crop according to claim 12 and comprising strawberries, tomatoes, melons or marrows.

10 14. A features hereinbefore disclosed, or their equivalents, in any novel selection.

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